Typical Features

- Wide input voltage range 85-900VAC
- No load power consumption ≤ 1W
- Efficiency up to 89%(TYP.)
- Switching Frequency 65KHz
- Short circuit, over current & over voltage protections
- Isolation voltage 4000VAC
- Conform to CE
- Specially designed for Coal mine electrical equipment

Application Field

FA40-600SXXG2N4 series ----- *High voltage AC-DC modular converters specially designed for Coal Mine developing requirements on safety power supplying, flexible & reliable assembly and technology innovation. The converters have the advantages of global adapted input voltage range, low ripple, low temperature raise, low standby power consumption, high efficiency, high reliability and safety isolated. This series of products can be used for the Coal mine monitoring and Security industry. The additional circuit diagram for EMC is recommended in this data sheet for the application with high EMC requirement.*

Typical Product List

Certificate	Part No.	Output Specifications			Max. Capacitive Load	Ripple & Noise (Max) 20MHz	Efficiency @ Full Load, 330VAC
		Power	Voltage	Current			
		(W)	Vo (V)	Io (mA)	uF	mVp-p	%(Typ.)
-	*FA40-600S24G2N4	40	24	1667	6000	100	86
	FA40-600S28G2N4	40	28	1428	5000	100	88
	*FA40-600S35G2N4	40	35	1150	5000	100	89
	FA40-600S37G2N4	40	37	1081	4000	100	89

Note 1: The * marked part has been developed in process.

Note 2: The full load efficiency should be in ±2% of the typical value in this table. The efficiency is calculated by the way that the full output power is divided by the input power.

Note 3: The Ripple and noise are tested by the twisted pair method according to the test instruction in the datasheet.

Note 4: Please contact Aipu sales for other output voltages requirements in this series but not in this table.

Input Specifications

Item	Operating Condition	Min	Typ.	Max	Unit
Input Voltage Range	AC input	85	330	900	VAC
Input Frequency range	-	47	50	63	Hz
Input Current	100VAC	-	-	0.9	A
	330VAC	-	-	0.4	

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Surge Current	330VAC	-	-	180	A
	900VAC	-	-		
No Load Consumption	Input 85VAC	-	-	1.0	W
	Input 900VAC	-	-		
Leakage Current	-	0.5mA TYP/230VAC/50Hz			
Hot Plug	-	Unavailable			
Remote Control	-	Unavailable			
Recommended External Fuse	-	2A/1000VAC, necessary			

Output Specifications

Item		Operating Condition	Min	Typ.	Max	Unit
Voltage Accuracy		Full input voltage range, any load	-	±1.0	±2.0	%
Line Regulation		Nominal load	-	-	±1.0	%
Load Regulation		Nominal input voltage, 10%~100% load	-	-	±1.0	%
Minimum Load		Single Output	0	-	-	%
Turn-on Delay Time		Nominal input voltage (full load)	-	3000	-	mS
Power-off Hold up Time		Input 300VAC (full load)	-	150	-	mS
		Input 660VAC (full load)	-	350	-	
Dynamic Response	Overshoot range	25%~50%~25% 50%~75%~50%	-5.0	-	+5.0	%
	Recovery time		-5.0	-	+5.0	mS
Output Overshoot		Full input voltage range	≤10%Vo			%
Short circuit Protection			Self-recovery			Hiccup
Temperature Drift		-	-	±0.03%	-	%/℃
Over Current Protection		Input nominal voltage	≥110% Io, self-recovery			Hiccup
Over Voltage Protection		Output 24Vdc	≤30			VDC
		Output 28Vdc	≤35			
		Output 35Vdc	≤45			
		Output 37Vdc	≤50			

General Specifications

Item	Operating Condition	Min	Typ.	Max	Unit
Switching Frequency	-	-	65	-	KHz
Operating Temperature	Refer to the temperature derating graph	-25	-	+70	℃
Storage Temperature	-	-40	-	+85	℃

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Soldering Temperature		Wave soldering	260±4℃, time 5-10S			
		Manual soldering	360±8℃, time 4-7S			
Relative Humidity		-	10	-	90	%RH
Isolation Voltage	I/P-O/P	Dielectric test 1 minute, leakage current ≤3mA	4000	-	-	VAC
Insulation Resistance	I/P-O/P	@500VDC	50	-	-	MΩ
Vibration		-	10-55Hz,10G, 30Min, along X, Y, Z			
Safety Class		-	CLASS Ⅰ			
MTBF		MIL-HDBK-217F@25℃	>300,000H			

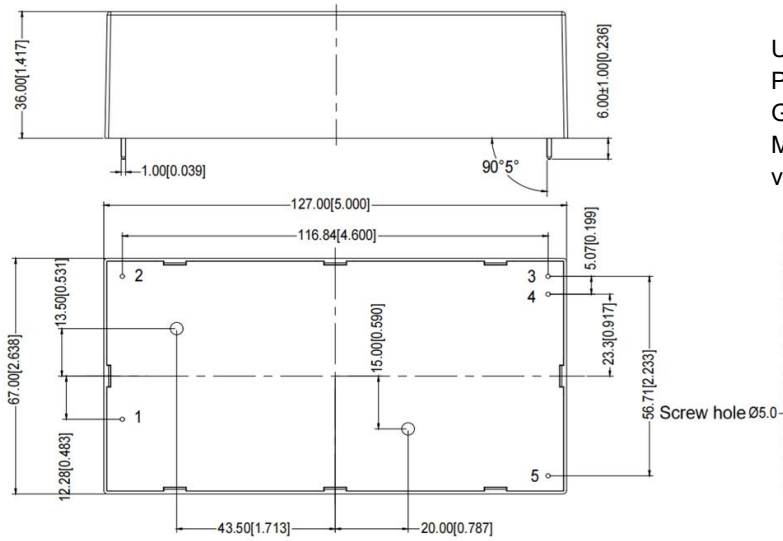
Physical Characteristics

Case Material		Metal
Unit Dimensions	Horizontal package	127.0X67.0X36.0 mm
Unit Weight		500g（TYP）
Cooling Method		Nature air

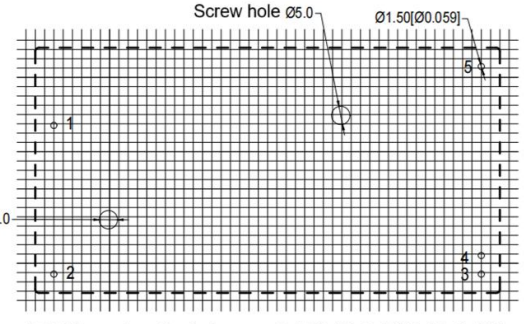
EMC Performances

Total Item	Sub Item	Test Standard	Performance/Class
EMS	ESD	IEC/EN61000-4-2	Contact ±6KV Perf.Criteria B
	RS	IEC/EN61000-4-3	10V/m Perf.Criteria A
	Surge	IEC/EN61000-4-5	±2KV Perf.Criteria B
	EFT	IEC/EN61000-4-4	±4KV Perf.Criteria B
	CS	IEC/EN61000-4-6	10Vr.m.s Perf.Criteria A

Mechanical Dimensions



Unit: mm[inch]
Pin diameter tolerance ±0.10[±0.004]
General tolerance ±1.00[±0.039]
M3 screwing fixing is recommended for strong vibration requirement.



PCB layout vertical view Grid 2.54x2.54[0.10x0.10]

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Packing Code	Dimensions L x W x H	
G2	127.0X67.0X36.0mm	5.000X2.638X1.417inch

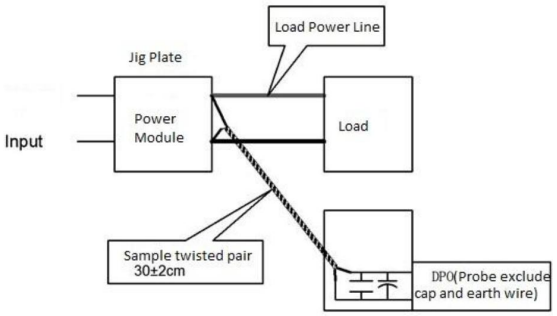
Pin Function Description

Pin No.	1	2	3	4	5
Single(S)	AC(N)	AC(L)	+Vout	-Vout	No Connection

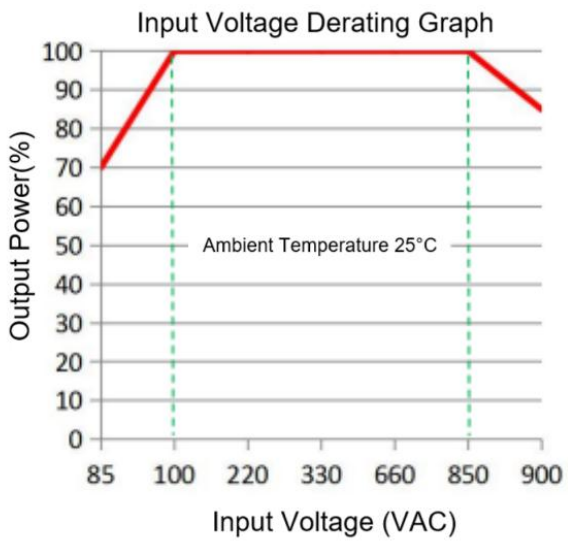
Ripple & Noise Test Instruction (Twisted Pair Method, 20MHZ bandwidth)

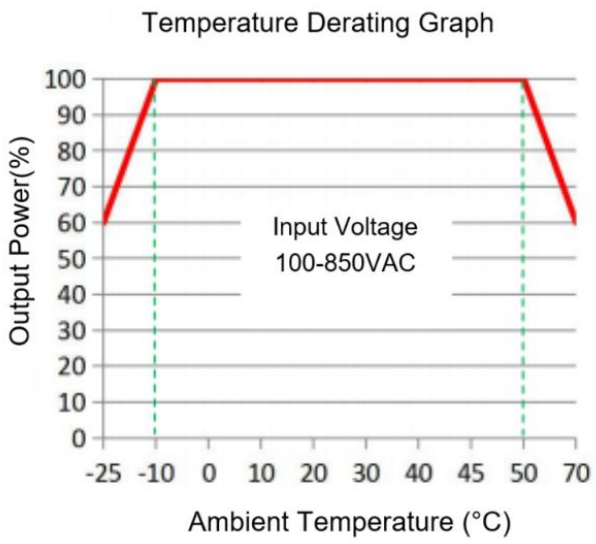
1) The Ripple & noise test needs 12# twisted pair cables, an oscilloscope which bandwidth should be set to 20MHz, 0.1uF polypropylene capacitor and 10uF high-frequency low-resistance electrolytic capacitors are connected in parallel with the probes (100M bandwidth). The oscilloscope should be set at the Sample Mode.

2) The test diagram is shown on the right. The converter output connects to the electronic load by the jig with cables which size should be defined according to the output current value. The twisted pair (length 30cm±2 cm) should be connected in parallel with the load, the location is as close as possible to the output pins or terminals. The test can be start after input power on.



Product Characteristic Graphs





Note 1: The output power should be derated based on the input voltage derating graph at 85~100VAC/850~900VAC.

Note 2: This product should operate at natural air condition, please contact us if it need be used at a closed space.

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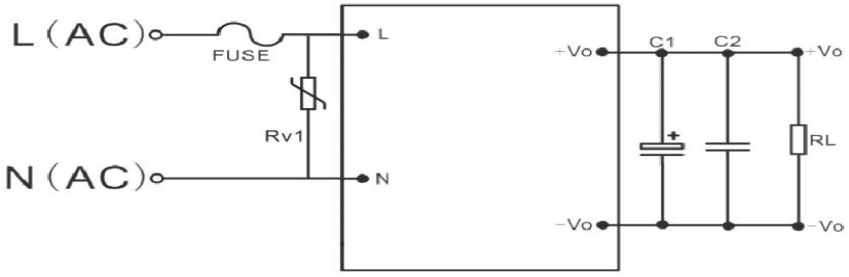
Typical Circuit Diagram for Application



Component No.	Component Name	Recommended Value
FUSE	Fuse	2A/1000VAC，necessary
RV1	Varistor	14D182K
C1	High frequency electrolytic capacitor	10uF/50V
C2	Ceramic SMD capacitor	1uF/50V

Application Notice

1.The products should be used according to the specifications in this datasheet, otherwise it could be permanently damaged.

2. A fuse should be connected at input.

3. The product performance in this datasheet cannot be guaranteed if it works at a lower load than the minimum load defined.

4. The product performance in this datasheet cannot be guaranteed if it works at over-load condition.

5. Unless otherwise specified, all values or indicators in this datasheet are tested at Ta=25℃, humidity<75%RH, nominal input voltage and rated load (pure resistance load).

6. All values or indicators in this datasheet had been tested based on Aipupower test specifications.

7.The specifications are specially for the parts listed in this datasheet, any other non-standard model performances could be out of the specifications. Please contact our technician for specific requirements.

8. Aipupower can provide customization service.

9. The product specifications may be modified without prior notice. Please refer to the published data sheet at Aipupower website.

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